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Hypnosis--Unpublished papers by LJW, 1948, ca. 1955-1957, 1961, 1973.

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S T U D I E S I N H Y P N O S I S

Outline of a Proposed Research Program to be

Undertaken Simultaneously at:

THE MOUNT SINAI HOSPITAL, NEW YORK CITY

M. Ralph Kaufman, M. D., Investigator

THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, BALTIMORE

Harold Rosen, M. D., Investigator

and

THE UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE, OKLAHOMA CITY

L. J. West, M. D., Investigator

With Concurrent Analysis and Integration of

Results from these Laboratories by

Zigmond Lebensohn, M. D., Coordinator,
Washington, D. C.

I. Introduction

II. General Research Plan

III. Studies on Basic Processes of Hypnosis

IV. Studies of Psychophysiological Functions Using Hypnotic Techniques

V. Studies of Hypnotherapy

VI. Budget

VII. Summary

VIII. Attachments

I. INTRODUCTION

Our scientific understanding of hypnosis remains surprisingly limited in view of the voluminous literature concerning hypnotism that has accumulated during nearly two centuries since Franz Anton Mesmer's doctoral thesis was published. To a certain extent the paucity of well-organized research on hypnosis can be understood as a reflection of its persistant association with charlatanism, magic, and the stage. These associations have tended to place hypnotism beyond the pale of scientific respectability. Yet, from Mesmer's time onward, certain scholars, physicians, and scientists have become sufficiently interested to undertake a variety of experiments. These investigations have ranged from clinical (e.g. Breuer and Freud) to laboratory (e.g. Hull), and a number of phenomena have been delineated and defined.

Despite the variety of these numerous but isolated studies, many significant questions remain as a challenge to the modern psychiatrist. What is the hypnotic state per se? How does it differ from normal wakefulness, from hypnagogic reverie, from states of great concentration and detachment, from trances induced by monotony, drugs, or psychiatric disease? To what extent can psychological processes and bodily functions be influenced by hypnotic suggestions, and what makes such influences possible? How does hypnotherapy differ from other psychological therapies, and what are its indications, contraindications, limitations, and possibilities?

To all of these questions various answers have been proposed, sometimes contradictory, sometimes unanimous for no apparent good

reason except conformity with one classical assumption or another.

One of the most difficult problems posed by research in hypnosis derives from the nature of the hypnotic relationship. The remarkable sensitivity of the subject renders him very likely to produce what the experimenter consciously or unconsciously desires or expects to find. The fantastic personal history given by "Bridey Murphy", convincing as it was to the hypnotist, actually only confirmed his own beliefs. It is remarkable how many experiments conducted under much more respectable conditions are really very little better controlled.

The four investigators proposing the present study have become keenly aware of the need for organized, controlled research on hypnosis. This awareness has grown during their association as members of the Committee on Hypnosis created by the American Medical Association's Council on Mental Health in 1956. There has been a rapidly increasing interest in hypnosis on the part of the public, the medical profession, non-medical professional groups, and innumerable pseudoprofessional healers. With all of this interest leading to much hypnotizing, ignorance has become increasingly intolerable. In discussing the need for new approaches to research in this field, and in analyzing the shortcomings and defects existing in so many previous efforts along these lines, the group's plan for simultaneous controlled experimentation has gradually evolved. After two years of preliminary discussions, the following general outline has been prepared.

II. GENERAL RESEARCH PLAN

It is proposed that a series of experiments, basically similar in design, be undertaken simultaneously at each of the three institutions listed above. Planning will be mutual to the point of sharing techniques, employing standardized measurements, and following a research design agreed upon in advance. However, results will not be shared for any given phase of the experimentation until a final statement has been sent by each of the three laboratories to the fourth (detached) investigator. He will then undertake an objective analysis of the bases for both agreement and disparity in the reported results. Upon completion of each stage of the work, the investigators will meet to plan and modify details of the succeeding studies.

III. STUDIES ON THE BASIC PROCESSES OF HYPNOSIS

A. Hypnotizability

One hundred consecutive normal subjects, obtained by a standardized selection process, will be subjected to hypnotic induction procedures. Four different techniques will be employed as follows:

	Lab X	Lab Y	Lab Z
50 subjects	Method A.	Method A.	Method A.
50 subjects	Method B.	Method C.	Method D.

Basic information about the subjects will be gathered and recorded in all cases. These data will be classified in the following categories:

1. Personality variables
2. Physiological variables
3. Familial variables
4. Sociocultural variables

Results will be analyzed with respect to intra-subject consistency of hypnotizability, depth of hypnosis, relationship of induction methods to subject variables, identification of predictive factors regarding both hypnotizability and choice of method, etc.

Other facets of the hypnotizability question will also be specified and studied.

B. Psychophysiological Characteristics of the Hypnotic Trance

Earlier studies have defined no clear-cut quantitative or qualitative psychophysiological characteristics of the hypnotic trance state (with rare exceptions, e.g. Ravitz). Newer bioelectric techniques, including methods for EEG analysis and improved polygraphic approaches to indicators of level of arousal and autonomic balance, suggest the potential value of reopening this issue. Recent Soviet findings support such a view. Data will be analyzed in relation to depth of trance, induction technique and induction time, and other variables deriving from (A) above.

C. Objective Parameters of Certain Classical Hypnotic Phenomena

1. Hypnotic Anesthesia

Quantification of noxious stimuli and of reflex responses to such stimuli is now possible to a degree of refinement heretofore unknown. Using such methods (Vernon, Lacey et al) the most recent work along these lines should be expanded to provide a more precise definition of the nature of hypnotic anesthesia. The general format of such experiments might follow a design in which each subject serves as his own control, and hypnotic vs. non-hypnotic sessions are randomly intermixed (West et al). Good work along these lines has been initiated recently at the Massachusetts Mental Health Center.

2. Hypnotic Hyperesthesis

Wolff and co-workers have recently demonstrated that tissue damage increases in proportion to perceived painfulness, even when the latter is an hypnotically induced hyperesthesia. Beginning with this finding, systematic studies of a variety of

characteristic responses to noxious stimulation should be undertaken, contrasting the effects of genuine vs. hypnotically-suggested stimuli. The general procedure should follow (1) above.

3. Hypnotic Hallucinations

Following the 1955 report of objective bioelectric concommitants of dreaming (Aserinsky & Kleitman), Dement and others have documented the consistency of EEG changes and characteristic eye movements during dreams. Efforts are now being made to determine whether similar changes occur during hallucinations induced by other means, such as sensory isolation, drugs, and hypnosis (West, Shurley et al). New techniques and controlled studies of the multilaboratory type should now be applied to the re-examination of experimental procedures undertaken during the '30s and '40s (Leuba, Welch, Erickson, etc.) attempting to clarify the nature of hypnotically suggested hallucinations.

4. Hypnotic Hypermnesia

In this area, repetition of classical experiments, using modern methods and controls, should be undertaken. A special area of study might include dream recall, comparing hypnotic with non-hypnotic recollection of material from dreams, using the method of Fisher & Dement for objectifying the dream-content initially (i.e. awakening the subject during his dream, recording his immediate report, and permitting him to return to sleep.) Other possibilities for relating hypnotic studies to work on memory and dreams easily suggest themselves.

IV. STUDIES OF PSYCHOPHYSIOLOGICAL FUNCTIONS USING HYPNOTIC TECHNIQUES

A. Specific Emotions

Efforts to induce specific affective states by hypnotic suggestion, and to document these objectively (Sweet), are few. Combined physiological and psychological changes have been demonstrated as discreetly or specifically due to depression (Engel), anger (Ax) anxiety (Grinker) and tension (Graham), by investigators at several centers. A sizeable, organized, systematic, controlled study using hypnotic suggestion to produce the specific feelings under study remains to be done. Parameters should include clinical (interview), psychological (test battery), physiological (polygraphic) and biochemical (esp. urine excretion patterns, c.f. Schottstaedt). Controls should, as always include waking suggestions and life situations.

B. Psychobiological Periodicity

A number of human functions are more or less periodic, regular, rythmical, or otherwise episodic. The extent to which these rythms can be influenced by hypnosis has never been explored, although preliminary observations have been made (e.g. on gastric contractions, Wolff & Stunkard). Fruitful possibilities recently have been suggested by studies of a variety of biological periodic phenomena in animals (Halberg).

C. Drug Actions

Hypnotic suggestion may enhance or inhibit drug effects; waking suggestion is also very potent in this respect, as placebo studies have shown (Wolf, et al). Also drugs having effects upon

the psychobiological apparatus, may enhance or inhibit hypnotizability to a greater or lesser extent. The general area of drug-hypnosis interaction needs review and a fresh exploration.

V. STUDIES OF HYPNOTHERAPY

A. Psychosomatic Disorders

Hypnotic vs. non-hypnotic influences in both exacerbating and alleviating bodily disturbances should be systematically studied. Objective, quantitative records of the changes under experimental and control conditions should be made. Acute rather than chronic experiments should be performed, to minimize contamination by unknown psychodynamic variables. Priority should be given to disorders specially lending themselves to the above specifications, such as those of the skin (e.g. hives); respiratory system (e.g. vasomotor rhinitis, asthma); gastrointestinal system (e.g. gastric hyperfunction, spastic colitis), and cardiovascular system (e.g. essential hypertension).

B. Emotional Disorders

The comparison of hypnosis to other psychotherapies remains impressionistic, empirical, and subject to distortions through prejudice or wishful thinking. A systematic study of hypnosis vs. other psychotherapies, using serial clinical admissions under a given diagnosis, and meeting standardized criteria for improvement, has yet to be undertaken.

VI. BUDGET (yearly, estimated, per laboratory)

Salaries	
Psychiatrist (half-time)	7,500
Psychologist	8,500
Research Assistant	5,000
Secretary	3,600
	24,600
Equipment & Supplies	
Electronic, psychometric, medical, etc.	12,400
Services	
Laboratory, biochemical, statistical	5,000
Travel and Communications	2,000
sub-total	44,000
Institutional Overhead (15%)	6,600
Total	50,600

VII. SUMMARY COMMENT

A need exists for controlled studies of hypnosis. Simultaneous investigations of specific research areas at three separate laboratories are proposed. Sample projects are listed, and a budgetary estimate is made. If support for such studies can be found, a detailed research design for the first phase of the program will be prepared.

VIII. ATTACHMENTS

A. Curriculum vitae of each investigator.

B. Description of facilities available at each center.

C. Letter from director of each sponsoring institution or department, endorsing the program.

PSYCHOPHYSIOLOGICAL STUDIES
OF HYPNOSIS
AND SUGGESTIBILITY

COPY

Research Proposal Submitted to the Geschickter Fund For Medical Research, as part of a continuing program at the Oklahoma Medical Research Foundation.

Louis Jolyon West, M.D.
Professor of Psychiatry
Principal Investigator

I. CONTINUATION OF STUDIES ON HYPNOSIS AND SUGGESTIBILITY

A. Preliminary clinical research during 1955-56 has yielded promising leads in terms of knowledge of how hypnotizability can be influenced by pharmacological means. Several drugs have been identified that apparently are effective in speeding the induction of the hypnotic state, and in deepening the trance that can be produced in given subjects. These observations remain to be confirmed through studies of larger numbers of normal subjects, and insofar as possible, quantified. Observations have also been made of drugs that provide some degree of immunity to hypnotic influence. These investigations also require considerable elaboration.

B. It is proposed that the experiments begun during 1955-56 involving hypnotizability, suggestibility, and the roles of certain drugs in altering these attributes, be continued and extended during 1956-67.

II. NEW STUDIES ON THE NATURE OF HYPNOSIS, SUGGESTIBILITY, AND TRANCE-LIKE STATES

A. Experiments involving altered personality function as a result of environmental manipulation (chiefly sensory isolation) have yielded promising leads in terms of suggestibility and the production of trance-like states. There is reason to believe that environmental manipulations can affect the tendencies for dissociative phenomena to occur. Isolation, in particular, can markedly change the individual's response to suggestion in the form of verbal communication.

B. It is proposed that new experiments utilizing special environmental manipulations, including sensory isolation, be begun with a view to-

ward determining the ways in which the resultant psychophysiological alterations can be quantified, and the ways in which these altered states can be utilized in the production of increased influenceability in normal subjects.

III. NEW STUDIES OF PSYCHOPHYSIOLOGICAL RELATIONSHIPS AND REACTIONS TO STRESS, EMPLOYING HYPNOTIC TECHNIQUES

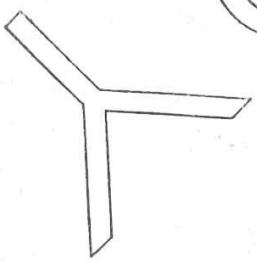
A. Current experiments have definitely established a number of ways in which hypnotic suggestions can bring about states of marked psychological stress in suitable subjects, with resultant changes in neurophysiological and neuro-endocrinological function. It has also been shown in preliminary studies that hypnotic methods can successfully be employed to protect individuals from the psychophysiological reactions to noxious stimulation. These observations constitute an indication that more control can be exerted over the autonomic nervous system than has been previously supposed. Coupled with the recent development of autonomic drugs of highly specific activity it is now possible to isolate more precisely than ever before the exact means by which and the precise degree to which psychophysiological reactions occur to specific types of stress.

B. It is proposed that the combined use of hypnotic techniques and autonomic drugs be exercised in initiating some original studies on the nature of psychophysiological reactions to stress.

IV. TECHNICAL CONSIDERATIONS

All of the above-recommended experimental procedures will require special equipment, special methodologies, and special skills. In order to make possible a continuing research program in this area, a psycho-

physiological research team is being developed at the Oklahoma Medical Center. Facilities of the School of Medicine, University Hospitals, Veterans Administration Hospital, and the Oklahoma Medical Research Foundation are available. However, within the overall framework of these facilities, a unique laboratory must be organized and constructed. This laboratory will include a special chamber, in which all psychologically significant aspects of the environment can be controlled. This chamber will contain, among other things, a broad-spectrum polygraph for simultaneous recordings of a variety of psychophysiological reactions of the individual being studied. In this setting the various hypnotic, pharmacologic, and sensory-environmental variables will be manipulated in a controlled fashion and quantitative continuous recordings of the reactions of the experimental subjects will be made. Under these conditions, and with the utilization of the special skills of the research team, it is expected that some significant original and valuable observations will be obtained.



ESTIMATED BUDGET 1956-1957

Principal Investigator (part time)	6000.00
Psychiatrist-Physiologist (part time)	5000.00
Experimental Psychologist	7500.00
Research Assistant	4200.00
Special Equipment and Supplies (Including polygraphic, electroencephalographic, electromyographic, and special stimulatory apparatus)	5000.00
Travel, Special Services, Miscellaneous	3600.00
Institutional Overhead (Oklahoma Medical Research Foundation.) (@15%)	4695.00
TOTAL	35995.00

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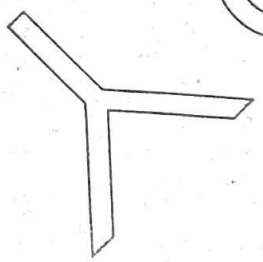

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REPORT ON RESEARCH IN HYPNOSIS

I - General Results of Preliminary Experiments and Studies (1955-56).

A. Studies on Hypnotizability and Suggestibility.

1. Effects of fatigue (including sleep deprivation).

Preliminary studies using both patients and normal subjects reveal that fatigue is not a constant factor in influencing suggestibility and hypnotizability. The study of individual cases makes it clear that fatigue may be worthwhile in overcoming the resistance of a subject who is attempting to keep from being hypnotized, but that it may actually interfere with the efforts of the fully cooperative subject to enter the hypnotic state. Since these studies are particularly concerned with overcoming resistance to hypnotism, however, it is most noteworthy that fatigue can successfully be used by the hypnotist if his suggestions employ the presence of fatigue to reinforce themselves. In other words, suggestions of catalepsy of the eyelids to the fatigued person are more likely to be successful. This may lead to a more rapid initiation of the hypnotic state. There are two difficulties attendant upon the use of fatigue in overcoming the resistance to hypnosis. The first difficulty is that it is more likely that such a subject will truly fall asleep than will a rested subject. The second difficulty is that the heaviness of the eyelids which normally occurs due to fatigue may deceive the hypnotist into believing that his suggestions are more effective than they really are. The results of preliminary attempts to use fatigue with a small group of subjects and patients indicates the necessity for more extensive highly sophisticated studies of suggestibility in the fatigued versus the rested state. Such investigations must employ quantative measures and must primarily involve the use of normal subjects

since it is doubtful whether the degrees of fatigue that would be a necessary part of the experimentation could be acceptably imposed upon patients. Work with a group already engaged in sleep-deprivation experiments might be worth-while in this regard.

2. Effects of drugs.

a. Chlorpromazine. Preliminary studies with both patients and normal subjects indicate that chlorpromazine is a valuable adjunct in preparing a patient for hypnosis. These preliminary observations indicate that the anxious, resistant, or hostile subject who is pre-medicated with chlorpromazine can be expected to respond favorably in a shorter period of time than were he not so pre-medicated. Doses of 100 to 200 milligrams have been found to be effective. In more cooperative individuals and in most normal subjects, a single 50 or 100 milligram dose may suffice.

b. Reserpine. Reserpine appeared to be less effective than chlorpromazine for several reasons. First, a longer period of time is required to bring about the necessary degree of relaxation. A period of one to two weeks may be needed for the full tranquilizing effect of the drug to become apparent. During this two week period there may be paradoxical reactions in the form of increased amounts of restlessness and irritability. In the second place, the subject is more likely to become depressed and withdrawn under the influence of reserpine than under the influence of chlorpromazine. Finally, there appears to be no particular qualitative advantage in the degree or type of relaxation brought about by the use of reserpine as compared with chlorpromazine, which is more rapid in its action. Whereas

chlorpromazine decreases general autonomic reactivity, it usually causes a relatively greater decrease of the parasympathetic component. Reserpine, on the other hand, although it also decreases total autonomic reactivity, appears to have a relatively greater effect on the sympathetic division. This is more likely to bring about untoward distracting side reactions such as stuffiness of the nose and gastrointestinal symptoms.

c. Frenquel. In a few cases Frenquel administered in a single large dose produced a fair degree of relaxation. In this state, subjects appeared to be more suggestible but less relaxed than with chlorpromazine. However, the effects of Frenquel were not nearly so constant as with chlorpromazine and several of the subjects in the patient group showed little or no response to the drug.

d. Meprobamate. Of the various drugs tested meprobamate appeared to be the most simple relaxant with relatively few effects upon mentation. Insofar as tension interfered with the hypnotizing of a given person, meprobamate appeared to be effective. However, in the subject whose resistance to hypnotism was on a more intellectual level, the simple type of relaxation provided by meprobamate did little to change the picture.

e. Amphetamine. Dextro-amphetamine, racemic-amphetamine, and meth-amphetamine all caused a relatively uniform increase in the difficulties of producing the hypnotic trance. In most cases this appeared to be due to the increased amounts of motor restlessness and sympathomimetic activity produced by the drug. However, the use of amphetamine (or similar analeptics such as Ritalin) was of value in making more

accessible to suggestion, the occasional individual who was over-medicated with chlorpromazine or reserpine.

f. Ritalin. In general the remarks dealing with amphetamine hold true for Ritalin. The main difference appears to be that there are fewer autonomic side effects with Ritalin, and that approximately twice the dose is needed to produce the same degree of increase in alertness.

g. Meretran. Meretran proved to have no apparent effect in either increasing or decreasing ease or rapidity of hypnosis.

h. d-Lysergic Acid diethyl amide (LSD). Although the administration of LSD produced in many individuals an increase in the spontaneous occurence of dissociative phenomena, there was nevertheless a definite interference with hypnotizability. The individual who had been pre-medicated with LSD was more difficult to hypnotize. However, an interesting preliminary observation is that at least some of the effects of LSD can be overcome by hypnotic suggestions. This can be demonstrated when LSD is administered to a person who is already a good subject, or when LSD is administered to a person who has already been placed in a hypnotic state. The degree to which the disturbance resulting from intoxication by LSD is due to emotional factors or auto-suggestion as a result of perceptual distortion may be profitably studied by the use of certain hypnotic methods.

3. Effects of Isolation.

Although it was impossible with makeshift facilities to bring about anything like the degrees and types of isolating reported by such workers as D. O. Hebb of Montreal and John Lilly of Bethesda,

it was nevertheless attempted with a few hospitalized subjects who were required to remain in isolation rooms for some period of time. There were so many technical difficulties, however, that these attempts cannot be considered to have contributed much of value except to define certain technical problems, and to provide certain clues as to the most effective future isolation techniques to employ for this type of experimentation. There is reason to believe that suggestibility can be markedly altered by isolation under certain circumstances.

B. Hypnosis and Pain.

1. Hypesthesia and anesthesia.

Previous researches have already indicated the degree to which the sensation of pain can be inhibited by hypnotic suggestion. (Reprint attached). These studies also demonstrated the degree to which autonomic reactions to pain can be cut down by hypnotic suggestions. More recent attempts to define the reasons for diminished autonomic reactivity to pain, even when perception is not impaired, indicate that: (a) noxious stimulation is considerably easier to accept and endure if its "threat-content" is diminished by suggestion; and (b) that by the use of such suggestions the actual damage resulting in the tissues subjected to noxious stimulation by painful methods may be decreased. In other words, both the "threat-content" and the perceived sensation of pain phy some part in determining the amount of tissue damage that will result from a given insult. Their relative roles must be determined by future research.

2. Hyperesthesia.

Painful sensations can be produced by suggestion alone. Work in progress shows that pains which are purely the result of hypnotic suggestion may lead to exactly the same responses of the autonomic nervous system as genuine noxious stimuli administered by various techniques. Furthermore, the reaction to a mild stimulus may be made to resemble the reaction to a severe stimulus if the mild stimulus is given together with hypnotic suggestions that it is severe. Under these circumstances, even though the stimulus is mild, the degree of tissue reaction that appears may in certain individuals be the equivalent of that which would otherwise only be produced by severe noxious stimulation.

3. Post-hypnotic, Self-induced Anesthesia.

Preliminary studies indicate that approximately one person in three can be trained to protect himself from the experience of pain under given circumstances by the use of self-induced hypnotic states. These can be brought about through the employment of hypnotic suggestion. Under optimal circumstances a subject who is suitably trained can protect himself from pain sensations occurring as long as one month subsequent to the post-hypnotic suggestion involved by means not obvious to the ordinary observer. Periods of time longer than one month have not yet been attempted, but it seems likely that they will be successful. No estimate is available concerning the total period of time that such a suggestion may continue in its effectiveness. This may vary considerably from one individual to another.

C. Hypnosis and Memory.

It has been well-known for many years that hypnosis can be used to recover

memories of events and experiences long since forgotten. Current experiments indicate that false memories may successfully be inserted and true memories removed in suitable subjects. In other words it has been found to be feasible to take the memory of a definite event in the life of an individual and, through hypnotic suggestion, bring about the subsequent conscious recall to the effect that this event never actually took place, but that a different (fictional) event actually did occur.

Related to this phenomenon is the use of hypnotic suggestions in order to progress people in time in a fashion similar to regressing them in time. This method offers two possibilities: (1) Progressing a person in time in order to alter his relationship with the examiner. For example, a person can be told that it is now a year later and during the course of this year many changes have taken place involving himself and the world at large, so that it is now acceptable for him to discuss matters that he previously felt he should not discuss. (2) By progressing an individual into the future, it is possible to determine what many of his current motives are by having him recollect them from a vantage point in time. Thus it may be perceived that an individual who insists he desires to do one thing will reveal that secretly he wishes just the opposite, if he can be persuaded that it is now some time later. Applications of this method for investigation of mental content have obvious advantages.

D. Hypnosis and Stress.

The use of hypnosis as a tool for the study of reactions to stress offers considerable promise. Preliminary observations indicate that many of the expected reactions to certain types of stress may be brought about by hypnotic suggestion alone in the absence of the stress in question. Quantitive studies

remain to be done. It has also been found that hypnotic suggestions of one kind or another may alter or interfere with the expected reactions of actual stress. This has been discussed with regard to a particular stress (i.e. pain). A few advanced experiments indicate that further, highly significant applications may be found in the study of stresses of various kinds, physical and chemical as well as psychological.

II - Research Prospectus for 1956-57.

A. Review of previous year's work.

Experiments described above, performed during 1955-56, were actually carried out under very difficult circumstances. It was necessary for the investigator to use crude facilities and limited equipment. The necessity to obtain most of the subject material from a population of psychiatry patients made standardized observations very difficult. Furthermore, the experimentater's frequent absences from Lackland Air Force Base, where the work was done, meant that many promising leads could not be followed up. Because of the limited opportunities to develop the research full-scale, only a portion of the available funds were utilized. The investigator was compensated on a fractional basis proportional to the amount of time actually spent working on the project. It was decided to postpone purchasing equipment and hiring ancillary personnel until July 1, 1956, when the situation becomes radically altered and an excellent setting for the research will be available. Many promising leads were obtained from the clinical types of investigation performed during 1955-56. These observations must be tested and quantified as much as possible. Furthermore their possible applications to various potential situations (psychotherapeutic, investigatory, and otherwise) will require considerable effort.

B. General Plan for 1956-57.

A psychophysiological laboratory will be organized to study the various phenomena in question, and to develop new methods and new techniques. This laboratory will itself differ in certain particulars from anything now available. As it is developed, it will provide a chamber to control rather completely various environmental factors invluencing perception (light, sound, temperature) as well as providing sources of particular stimulations (flickering light, sound of certain frequencies, noxious stimulation of various types). Within this chamber will be the means to make complete polygraphic records of various responses (including autonomic). In this way parameters will be devised.